

Amendment to the Claims:

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)
4. (Previously Amended) The system of claim 22 wherein the 1,2 dioxetane is [(4-methoxy)-4-(3-phosphoryloxy-4-chlorophenyl)] spiro [1,2-dioxetane-3,13'-tricyclo[7,3,1,0^{2,7}] tridec-2,7-ene], disodium salt.
5. (Currently Amended) The system of claim 21 wherein the enhancer is selected from the group consisting of an ammonium or a phosphonium polymeric salt and mixtures thereof.
6. (Original) The system of claim 5 wherein the polymer salt comprises a fluorescent molecule.
7. (Original) The system of claim 5 wherein the enhancer is a water-soluble polymeric compound prepared by reacting polyvinylbenzyl chloride with either tributylphosphine or tributylamine to form the phosphonium salt or ammonium salt, respectively.
8. (Previously Amended) The system of claim 5, wherein the enhancer is partially water-soluble, the enhancer being prepared by the reaction of polyvinyl benzyl chloride with either a 4:1 weight ratio mixture of (a) trioctylphosphine and tributylphosphine or (b) trioctylamine and tributylamine.
9. (Previously Amended) The system of claim 5 wherein the enhancer is a water-insoluble polymeric compound prepared by reacting polyvinylbenzyl chloride with either trioctylphosphine or trioctylamine to form the phosphonium salt or ammonium salt, respectively.

10. (Previously Amended) The system of claim 9 wherein the polymer comprises a fluorescent molecule.

11. (Previously Amended) The system of claim 1 wherein the enzyme diluent comprises an aqueous mixture of:

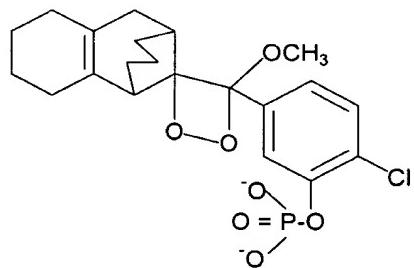
- (a) a metal halide,
- (b) an alcohol,
- (c) an amine-based salt,
- (d) a blood or plant protein or mixtures thereof, and

wherein the diluent has a pH of from about pH 7 to about pH 10, the diluent corresponding to blood components, and further wherein the system is enzyme triggerable at single molecule detection levels.

12. (Previously Amended) A method of chemiluminescence detection, which comprises; contacting the system of claim 1 with an enzyme selected from the group consisting of alkaline phosphatase, beta galactosidase, and cholinesterase.

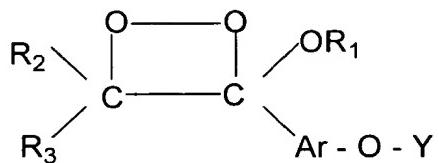
13.-20. (Cancelled)

21. (Previously Amended) The system of claim 22 wherein the chemiluminescent 1,2-dioxetane has the following structure



22. (Previously Amended) A chemiluminescence detection system, comprising:

(a) an enzyme triggerable stable chemiluminescent 1,2-dioxetane corresponding to the formula:



wherein R₂ and R₃ are each organic groups which when combined together form an unsaturated organic group or when uncombined at least one of the R₂ and R₃ contains an unsaturated carbon double bond or triple bond and Y is an enzyme cleavable group and R₁ is either a substituted or unsubstituted aryl, alkyl, aralkyl, alkaryl, alkene or alkyne, and further wherein when Ar-O-Y and OR join together to give an aryl group substituted with an O-Y group to form a stable 1,2-dioxetane intermediate which is triggerable to form an unstable intermediate oxide, R₂ and R₃ form $\text{C}_{(\text{IR})}$ which is either cyclic, polycyclic or a spiro-fused ring containing at least one carbon-carbon double bond or carbon-carbon triple bond in the ring or side chain with or without hetero atoms,

- (a) an enhancer, and
- (b) an enzyme diluent or stabilizer.